UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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CHICAGO, IL 60604-3590

SEP 28 2001

REPLY TO THE ATTENTION OF

Ms. Mary Beth Tuohy
Assistant Commissioner
Office of Land Quality
Indiana Department of Environmental Management
P.O. Box 6015
Indianapolis, IN 46206-6015

Re: Lake Sandy Jo Landfill, Gary, Indiana
Five-Year Review Report

Dear Ms. Tuohy:

The U. S. Environmental Protection Agency (U. S. EPA) has reviewed the above referenced Five-Year Review Report dated September 2001. The report was prepared by the Indiana Department of Environmental Management (IDEM) and signed by you on September 28, 2001. U. S. EPA concurs with IDEM's conclusion that the site remedy remains protective of human health and the environment and thus, the report is hereby approved.

U.S. EPA appreciates the efforts of Prabhakar Kasarabada of your staff in conducting this review. Please feel free to contact me if you have any questions.

Sincerely,

William E. Muno, Director
Superfund Division

Five-Year Review Report
Lake Sandy Jo Superfund Site
Lake County, Gary, Indiana

I. INTRODUCTION

The Indiana Department of Environmental Department (IDEM) has completed the second five-year review for the operation and maintenance (O&M) phase work being conducted at the Lake Sandy Jo (LSJ) Superfund Site, located at 3615 W. 25th Avenue, Gary, Indiana. This review was conducted to determine if the Remedial Action (RA) implemented at the site remains protective of human health and the environment.

Section 121(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substance Contingency Plan (NCP), require that periodic (no less often than every five years) reviews be conducted for sites where hazardous substances, pollutants, or contaminants remain at the site above levels which will allow for unlimited use or unrestricted exposure following the completion of all remedial actions for the site.

United States Environmental Protection Agency's (U.S. EPA's) Office of Solid Waste and Emergency Response (OSWER) Directives 9355.7-02 (Structure Components of Five-Year Reviews, May 23, 1991) and OSWER Directive 9355.7-02A (Supplemental Five-Year Review Guidance June 26, 1994) provide that the U.S. EPA will conduct five-year reviews as a matter of policy (Policy review) at: (1) sites where no hazardous substances remain above levels that will allow unlimited use and unrestricted exposure after completion of the RA, but the cleanup levels specified in the Record of Decision (ROD) will require five or more years to attain, or (2) sites addressed pre-SARA at which the remedy, upon attainment of the cleanup levels, will allow unlimited use and unrestricted exposure. The LSJ ROD was signed on September 26, 1986. This ROD is pre-SARA, therefore, the five-year review of the LSJ site was conducted as a matter of policy, in accordance with the directives mentioned above. The U.S. EPA established a three-tier approach to conducting five-year reviews. The U.S. EPA determines the level of the review based on site-specific considerations, including the nature of response activities, and the proximity to the populated areas and sensitive environmental areas. The Level 1 review is the most basic of the three and provides a minimum protectiveness evaluation.

A Level 1 Review was conducted by IDEM staff for the LSJ site. The Level 1 Review consisted of: (1) a review of site related documents, (2) O&M activities performed by IDEM's contractor, and (3) a site visit.

II. SITE HISTORY

The LSJ site includes a former borrow pit lake that was filled between 1970-1981. The borrow pit lake was filled mainly with construction and demolition debris. It is suspected that industrial wastes, municipal wastes, and drummed wastes were also dumped at the site. It is estimated that 80% of the wastes are located below the water table in the shallow Calumet aquifer. In 1971, the site was first used as a landfill. During the following nine (9) years, the lake was filled with mostly construction and demolition debris. There is evidence, however, that some hazardous wastes were illegally dumped at the site.

The landfill operations officially ended in 1980. State of Indiana officials and the U.S. EPA noted numerous problems throughout the landfill's operating history. The problems included unauthorized waste dumping, water pollution, on-site fires and incomplete covering of wastes. Investigations by the State and the U.S. EPA led to the inclusion of the LSJ site on the National Priorities List (NPL) in September 1983. The land use around the LSJ site is primarily low density residential, except for the traverse of Interstate 80/94, which lies along the southern boundary of the site.

III. RESULTS OF SITE INVESTIGATIONS

A security fence was constructed around the site under a removal action conducted by the U.S. EPA in April 1986. The fence eliminated the threat of direct contact to the site contaminants. A Remedial Investigation/Feasibility Study conducted by CH2MHill for the U.S. EPA was completed in August 1986. The study revealed that the surface soils and sediments in the area were contaminated with polynuclear aromatic hydrocarbons (PAHs) and heavy metals. The sediment samples were collected from the drainage ditches south of the landfill. The study also revealed contamination in the shallow groundwater around the site. High levels of iron, manganese, sodium, magnesium, potassium, low levels of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and heavy metals were detected in groundwater. Benzene was the only chemical detected that exceeded primary drinking water standards.

The U.S. EPA signed the ROD in September 1986. The final remedy for the site included on-site disposal of excavated sediments, a soil cover for the landfill, deed restrictions, institutional controls and an alternative water supply for surrounding and downgradient residents.

IV. SUMMARY OF RESPONSE ACTIONS

Soil cover (cap) construction, sediment excavation, and monitoring well installation activities were completed in December 1990 as part of the Remedial Action (RA) for the first operable unit. The cap construction consisted of a 2-feet-thick soil cover over the landfill area. In order to maintain soil stability and erosion control, a permanent vegetative cover with prairie grass was established and maintained. IDEM began O&M activities for this RA in February 1994. O&M activities included quarterly groundwater monitoring, cover maintenance and site security. The second operable unit Remedial Action (RA) included provision of an alternate water supply to

residents likely to be affected by groundwater contamination attributed to the LSJ site. A private utility company in the area, Gary Hobart Water Company (GHWC), agreed to assume ownership and provide operation and maintenance for the water supply lines constructed as part of the project. A total of 32 residences have been connected to the water supply system and 18 more were provided the equipment necessary for the connection. The second operable unit work was completed in September 1994.

O&M Activities

A. Groundwater Sampling

Groundwater sampling at the LSJ site is being conducted on a quarterly basis as prescribed in the Lake Sandy Jo O&M Manual. There are seventeen (17) monitoring wells at the LSJ site. These wells include two on-site, one upgradient and fourteen off-site wells. The results of the quarterly groundwater monitoring events conducted January 1996 thru February 1999 are discussed in this Five-Year Review Report. The quarterly sampling results from 1996 and 1997 indicated a trend of increase in benzene levels (above Maximum Contaminant Levels of 5 parts per billion). Results from the August 1998 sampling event reflected a decrease in benzene levels, while the December sampling event indicated an increase in benzene levels. The results of the organic analyses from the February 1999 sampling event confirmed that concentrations of benzene greater than the Maximum Contaminant Levels (MCLs) persist in the following off-site wells: MW-004, MW-005, MW-006, MW-015 and MW-023R. These benzene levels are of particular interest because of the close proximity of these wells to each other. In every one of the wells sampled in this area (the southeastern corner of the LSJ site), the benzene levels have been relatively constant over the last few sampling events. In an effort to further investigate benzene level trends, IDEM staff and the O&M contractor held a meeting in January 1999 and decided to include off-site monitoring wells MW-003, MW-004, MW-006 in all future sampling events. There are detections of benzene in the perimeter wells exceeding the MCL of 5 ug/l. However, benzene has not been detected in the down gradient wells and therefore has not migrated to the south to pose a threat to downgradient users of groundwater.

With respect to the metal analyses, it is noted that none of the samples exceeded MCL target parameters. Arsenic was detected in well MW-005 during the December 1998 sampling event at concentrations greater than the MCL of 0.05 mg/L, but has decreased since. The same is true for MW-023R. The concentration of cadmium detected in MW-021, the site background well, was below detection levels during the February 1999 sampling event. Chlorobenzene and 1,2,4-trimethylbenzene were found in several of the wells during the August 1998 quarterly sampling event. These compounds were not detected in any of the wells sampled during the February 1999 sampling quarterly event. Groundwater sampling was not conducted after this quarterly sampling event due to contractual problems. The sampling is expected to resume in the fall of 2001.

B. Cap Inspection and Site Conditions

IDEM staff conducted a site inspection on March 26, 2001, in conjunction with the five- year review. The cap and the vegetative cover were in good condition. The site entrance gate was damaged and was repaired in June 1999. The fence is secure and in good condition. The current site inspection revealed that off-site wells, MW-005 and MW-006, need new concrete pads. Accordingly, the well repair work was completed in May 2001.

C. Progress Since Last Five-Year Review

The following recommendations were made in the last five-year review dated January 18, 1996:

- **Previous Recommendation:**

  Acquire access to Reagins property to collect samples from monitoring wells MW- 005, 006 and 007. The wells may also need additional maintenance to address serviceability and security concerns:

  Current Status

  In March 1996, access permission to Reagins property was obtained. Since then groundwater samples have been collected from monitoring wells MW-003, 004, 005, 006. MW-007 was not located on Reagins property.

- **Previous Recommendation:**

  Monitoring well MW-022 should be sampled in the near future to determine whether the detected concentrations of vinyl chloride in groundwater are laboratory artifacts or preservatives.

  Current Status

  Monitoring well MW-022 has not been sampled since 1995. The well was not included in the prescribed LSJ site monitoring schedule. However, IDEM is planning to sample all of the monitoring wells near the site, including MW-022, this fall.

- **Previous Recommendation:**

  Information regarding acceptable levels of tetrahydrofuran needs to be obtained to determine if the levels detected in the monitoring wells are a potential threat to human health or the environment.

Current Status

Currently there are no action or risk-based levels for tetrahydrofuran (THF). A review of the analytical data (Jan 1996-Feb 1999) slowed that THF concentrations are decreasing in most of the off-site monitoring wells. After the next round of sampling, scheduled this fall, THF concentrations will be further reviewed and the future course of action will be determined.

- **Previous Recommendation:**

Modify Sampling Schedule to reduce the sediment sampling to once per year. The remaining schedule for surface water and groundwater should remain the same until a more complete data set is obtained.

Current Status

Sediment sampling will be conducted once per year. The O&M manual prescribed sampling schedule for groundwater and surface water will continue.

- **Previous Recommendation:**

The effectiveness of mowing to control teasel should be monitored over the coming seasons to determine if the teasel spread is slowed and if the teasel monoculture areas are found to have more grasses and ground covering plants as a result of less shading and competition.

Current Status

Due to the heavy growth of vegetation, the site was mowed in May 2001. On September 21, 2001, IDEM staff inspected the LSJ site to estimate the teasel growth and spread. Teasel density measurements were taken at several locations. Mowing as implemented has not controlled growth and spread of teasel on this site. The teasel spread area was mapped using a global positioning system (GPS) unit. The data collected during the inspection will be further analyzed and appropriate steps will be taken to contain the teasel growth and spread.

Previous Recommendation:

Continue to survey the cap (soil cover) to determine if subsidence of the cap is occurring and the rate of subsidence to evaluate whether or not additional maintenance activities are necessary.

Current Status

In August 1997, an elevation survey of the LSJ site cap was conducted. The results of the survey indicated that the cap was stable. No additional maintenance activities were required for the cap.

- **Previous Recommendation:**

  Continue to monitor benzene in the groundwater and evaluate the impact to downgradient users.

  Current Status

  IDEM staff are monitoring closely the benzene levels in the groundwater, which appear to be either decreasing or stabilizing. Downgradient residents are not at risk at this time due to city water hookups provided by the U.S. EPA during 1992-93.

- **Previous Recommendation:**

  Complete deed restrictions.

  Current Status

  In April 2000, the Indiana Attorney General (IAG) filed a lawsuit against all the property owners of the LSJ site that have not recorded the deed restrictions on use of the land and the groundwater. As a result, in August 2000, one property owner agreed to record deed restrictions and subsequently was dismissed from the lawsuit. It is anticipated that a court order will determine the status of the remaining property owners.

- **Previous Recommendation:**

  Install signs on the fence.

  Current Status

  Warning signs have been posted on the fence on all sides of the property.

V. REMEDIAL OBJECTIVES

The remedial objectives for the Lake Sandy Jo site are to ensure continued protection of human health and the environment near and downgradient of the site. The ROD also identified the following general response actions necessary to address problems at the LSJ site:

- Prevention of inhalation, absorption or ingestion of surface soils and sediments.

- Prevention of ingestion of contaminated drinking water from existing and future releases to the Calumet aquifer.

- Prevention of future releases of sediments to east-west and southeast drainage ditches from on-site surface soil erosion.

VI. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The applicable or relevant and appropriate requirements (ARARs) that still pertain to the LSJ site have to do mainly with requirements related to groundwater and surface water monitoring. No new ARARs (more stringent than those already discussed in the first Five-Year Review Report, January 1996) have been identified during the current review. During the previous review, the following ARARs were evaluated:

- Safe Drinking Water Act (SDWA), 40 CFR Parts 141 and 143. Part 141 establishes National Primary Drinking Water Standards. Maximum Contaminant Levels are applicable and non-zero MCL Goals are to be considered. Part 143 establishes National Secondary Drinking Water Standards.

- Clean Water Act, 40 CFR 131. Water Quality Criteria for the discharge of contaminants to the drainage ditch south of the site.

- 327 Indiana Administrative Code (IAC) 2. State of Indiana Water Quality Standards for the discharge of contaminants to the drainage ditch.

- 327 IAC 2-1-7. State of Indiana Interim Groundwater Quality Standards.

- 327 IAC 8-2. State of Indiana Public Water Supply Drinking Water Standards.

- Resource Conservation and Recovery Act of 1976 (RCRA).

VII. COMMUNITY RELATIONS

There is significant community interest at this site. During February 1999, at the request of a landowner adjacent to the LSJ site, a copy of the analytical results from February 1994 to August 1998 sampling events was provided. During the month of June 1999, at the request of the Melaninic Women Motivators, a local women activist group based in Gary, Indiana, IDEM staff held a public availability session. Staff gave a presentation about the LSJ site history and status, and responded to questions asked by the meeting attendees. IDEM staff sent copies of the O&M activities' reports to the repository located in Gary, Indiana, for public information.

The completed five-year review report will be available at the information repository. Notice of completion of the five-year review report will be placed in the local newspaper and the local county health department will be notified by letter.

VIII. RECOMMENDATIONS

- IDEM staff will continue to monitor benzene levels in the groundwater which appear to be either decreasing or stabilizing.

- After the next round of sampling, scheduled this fall 2001, tetrahyrofuran (THF) concentrations will be further reviewed and a future course of action will be determined.

- IDEM will follow up and ensure that deed restrictions are recorded for the remaining properties at the site.

- The data collected during the teasel inspection survey will be analyzed and appropriate steps will be taken to contain teasel growth and spread at the site.

IX. STATEMENT OF PROTECTIVENESS

IDEM staff certify that the remedy selected for this site remains protective of human health and the environment based upon the current evaluation of site conditions and monitoring data.

X. NEXT REVIEW

The next Five-Year Review will be conducted within five years of the completion of this report.

Mary Beth Tuohy, Assistant Commissioner — Date 9/28/01
Office of Land Quality
Indiana Department of Environmental Management